

Reclaiming Residual Spaces for the Public: A Case Study from the City of Cairo

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Abstract

This paper investigates the potential of revitalizing urban residual spaces and turning them into viable open spaces, as a means to redress the deficiency of open spaces in congested cities. While the population in mega cities continuously increases over a fixed plot of land, the inhabitants' need for open space correspondingly increases and hence cities' limited land resources can hardly keep up with users' increasing demands. Furthermore, if vacant plots of land are ever available within congested cities, they are scarcely assigned for public open spaces and more often dedicated to commercial investments. This highlights the need to find innovative ways by which open spaces could be reclaimed.

The rationale of this paper is to discuss residual spaces as a potential innovative solution to this problem with a specific emphasis on the city of Cairo. Residual spaces existing within the city are often modified officially by formal bodies or informally by users - to compensate for missing services. This modification is referred to as "appropriation".

Building upon the socio-spatial qualities of residual spaces, interventions are made to fulfill a wide range of users' needs- both necessary and complementary. In that sense, it is argued that appropriation is an indication for the hidden potentials of residual spaces.

The paper first discusses how residual spaces are defined in the ¹³literature to reach an overarching definition for residual spaces. Then, a socio-spatial approach is used to understand qualities of residual spaces. Finally, the paper reviews various initiatives in the Cairene context which succeeded to transform urban residuals into sites of use. This paper concludes that urban residuals comprise dormant potentials and are capable of fulfilling part of the users' needs. Yet, how residual spaces form and how they could be best approached are issues in need for further investigations and public awareness.

Keywords: Residual spaces, Appropriation, Cairene open spaces, Public realm, Urban revitalization, Socio-spatial approach.

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Introduction

Decline in open public spaces is a worldwide trend increasing with more direction towards privatization and capitalism (Madanipour, 2010). This decline in open public spaces is even more evident in congested cities, especially those in third world countries-such as Cairo- where there is an obvious inadequacy of open spaces and scarcity of vacant lands to be assigned for open spaces.

Urban open spaces are of an extreme health, economic and social values. They are still- up to this moment- "the only place where people may come together in face-to-face reactions, and for that it is important in the generation of public realm" (Alanyali, 2009). This means that increasing the percentage of public open spaces is a must, due to their importance and the impossibility of substituting them by any other facility.

However, a major obstacle for increasing public open spaces is that overcrowded modern cities which are in short supply of open spaces scarcely assign plots of land within the city -if ever available- for public recreational purposes. This is even more evident in third world countries where recreational facilities are not on the list of governmental priorities. The discrepancy between the amounts of open spaces needed and the tremendous scarcity of available lands makes it essential to look for innovative solutions.

Although congested cities suffer from the of scarcity open spaces, observations and literature review have revealed a dichotomy between such scarcity, and the availability of many unused dead zones within the same cities. Making the best use of such a dichotomy offers not only an innovative solution but also a very practical one that might help in overcoming this huge discrepancy between the drastic need for open spaces and the scarcity of vacant land being assigned for such a purpose. Using residual urban spaces found within our urban context is the core subject of this paper. Residual spaces exist in different forms and scales and have the advantage of being dispersed within the city fabric. According to Lynch, "A network of relatively small spaces, well distributed within the urban system, may be more useful than the large tracts which look so well on land-use maps" (Lynch, 1995). This suggests that their revitalization will not only provide a substantial additional area for open spaces but also this area will be serving different districts and consequently corresponding to the specific needs of each district.

Observations have revealed that a lot of these spaces are already exploited through appropriation, an act that reveals the hidden potentials of urban residuals. It proves that such residual spaces are capable of satisfying an existing need for public open spaces. The objective of this paper is to help in defining and pinpointing residual spaces, investigating their qualities and potentials, and discussing means of interventions upon them. Finally, the paper gives examples from the Cairene context validating the previously derived theoretical ideas. In general, the paper serves as a step towards raising awareness on residual spaces, being a potential make up for open spaces scarcity in congested cities.

To achieve the objective of this paper first, key terms and concepts related to those potential spaces are defined, analyzed and classified, thus a single overarching definition of these spaces is concluded. Then, a socio-spatial approach is used to explain qualities of residual spaces. This approach covers the physical qualities of the spaces as well as the usage qualities- pre and post intervention. Subsequently, those findings are investigated in the Cairene context. The paper

displays several examples of residual spaces in Cairo portraying different ways by which residual spaces were modified to fulfill users' needs.

Residual Spaces: key Terms and Concepts

This paper investigates Residual spaces; a category of open spaces which exist in our urban context yet rarely studied by urbanists. General definitions for residual spaces include that of Stevens and Frank; defining them as those usually informal spaces lying outside the main stream of life and with lower levels of surveillance and control (Frank and Stevens, 2007). Similarly, Ignasi de Sola-Morales describes them as "un-inhabited, unproductive, foreign to the urban system" spaces, denoted by "Terrain vague" (Morales, 1995), whereas Groth and Corijn refers to those spaces as "intermediate spaces", "no man's land" and "free zones" (Groth and Corijn, 2005).

The following literature review shall highlight major streams of thought defining residual spaces. As shown above, residual spaces are referred to in the literature using different terminologies. They are defined by physical qualities and usage qualities of the site and in other cases they are portrayed in the literature through reasons of their emergence or by their typologies in real life.

Alanyali's definition for what she calls "Leftover spaces" covers their reasons of emergence, physical qualities and the mode of use of the site. As for the reasons of emergence, she refers to lack of control and maintenance as a reason why a space becomes leftover. She sets two scenarios for a space to become leftover; first, a space never having its share of design by the authorities and therefore it doesn't serve the public and those spaces are usually characterized by a ruined disorderly appearance and second, a space which was once designed by the authorities but has been subject to deterioration and became no longer used. This implies that a space can start out in a good state and then become leftover by time. As for the physical qualities denoting leftovers, she refers to lack of boundaries as well as the disorderly appearance as significant qualities of leftovers. Finally, as for occupation patterns of leftover spaces, Alanyali argues that leftovers are signified with misuse, underuse and most importantly, in many cases they are symptomatic with "appropriation" (Alanyali, 2009). Based upon these three aspects, she concludes six typologies of leftover spaces in the Turkish context as mentioned in Table 1.

In Trancik's account on what he denotes as "Lost spaces", he defines them as "the undesirable urban areas that are in need of redesign, anti-spaces, making no positive contribution to the surroundings or users". They are physically significant with low exposure and ill definition and their mode of use is significant with low flow rate of users. As for the reasons behind their emergence, Trancik argues that the modern era planning played a role getting these sites into existence in the first place, then low control, undefined ownership and lack of management rendered them "lost". Since a left over space is in many cases no-man's land, this undefined ownership makes it prone to low maintenance levels. As a result, the site eventually becomes abandoned and this is when it is considered "lost" (Trancik, 1986). As we notice in Trancik's argument, eventually it's the lack of use that proclaims a space being "lost".

Loukaitou Sideris (Loukaitou- Sideris, 1996) along with Carmona and Tibbalds agree with Trancik that the lack of management- as in "applying control and maintenance on the space"- is to be blamed for the occurrence of unused, deteriorated and neglected urban Spaces. Carmona calls such spaces "neglected spaces", "residual spaces" and "liminal spaces" and marks them with being littered, unmaintained and prone to urban decay (Carmona, 2010).

In Winterbottom's studies on residual spaces, he denotes three types of residual spaces, "non-spaces," "leftover spaces" and "dual-use spaces". The proximity to movement corridors is the main attribute defining "non-spaces". This includes median strips and rights-of-way along highways and roads. Based upon usage qualities, he assigns the term "Dual-use spaces" for areas that are assigned a certain function at certain times and become residual on other times such as parking lots that are largely vacant after business hours. Finally, he refers to "leftover spaces" as un-programmed spaces detached from surrounding spaces such as odd geometric spaces adjacent to intersections, setback frontages and traffic islands.

The work of an undergraduate design studio in Virginia University guided by Phoebe Crisman referred to urban residuals as "Sites out of sight". Sites out of site exist on the urban as well as on the neighborhood scale. They are often secluded from movement arteries and thus rarely visited by people. As for the fact that they are "out of sight", Crisman differentiates between two types of invisible sites; the first are sites which were initially designed to be used however they became unseen by time- such as neglected parks-, whereas the second are those which were never intended to be well seen- such as prohibited fenced spaces. Finally, Crisman refers to "lack of human occupation" as a major non physical aspect denoting a site out of sight. This implies the dimension of "time" to the debate; for a space could be a sporadic site out of sight- used on particular occasions and abandoned on others or could be a permanent site out of site, which is always in a state of abandonment (Crisman, 2005).

Considering the factor of human occupation, Crisman aligns with Gil Doron's who refers to abandonment and emptiness of use in defining "dead" sites. Doron classifies such sites into two categories. They could either be "dead zones", which are sites emerging due to a function that no longer exists or "dead edges", referring to leftover spaces that are attached to linear corridors and usually situated along roads, railways, riverbanks and pavements. These spaces are normally derelict and empty of use, however, he agrees with Alanyali that sometimes in such spaces the formal program is suspended and replaced by informal ones- a phenomenon referred to as appropriation (Doron, 2007).

The replacement of formal programs by informal ones mentioned by Doron and Alanyali is also pointed out by other urbanists as a key aspect that highlights residual spaces. Residual spaces are often acted upon and become informally modified by users to host various activities. This informal modification is referred to as "appropriation". Indeed, appropriation is defined by Korosec-Serfaty as "the dynamism aimed at exercising mastery over space" (Korosec-Serfaty, 1977). Since residual spaces are usually uncontrolled, unmanaged and often unoccupied, they become a good medium for informal interventions.

Appropriated Spaces: A Condition of Residual Spaces

Rivlin suggests that people don't only use plazas and public squares for their leisure, but they also use other less defined less designed settings "found" in their surrounding, such as strips of sidewalks and street intersections. Such spaces host similar activities as those practiced in designed public spaces; however, the major difference is that they are appropriated activities that were not formally pre-planned. The spontaneity, together with the casual manner of doing these activities are the main points of difference between "found spaces" and "tight spaces"¹⁴.

¹⁴ "Tight spaces" is a term proposed by Sommer (1974) indicating those highly programmed spaces.

Found spaces are generally located in convenient places that take little time and effort to reach, visible and accessible enough to draw people's attention to them (Rivlin, 2007).

Frank and Stevens also build upon the concept of appropriation for their definition of what they call "loose spaces". Those are spaces subject to appropriation and freedom of choice, whether they are originally designed or abandoned. In the latter case, the fact that they are "unscripted" allows them to become loose (Frank and Stevens, 2007).

From the above literature, we deduce that appropriation is a common feature between loose spaces, found spaces, leftover spaces and residual spaces, however, not every appropriated space is residual and not every residual space is necessarily appropriated.

In order to reach an overarching definition for urban residuals, terminologies and descriptions for residual spaces posed by different theorists are concluded in Table 1, and accordingly essential qualities signifying residual spaces are deduced. The table also includes examples from real life manifesting each theorist's vision.

In Table 1, all the qualities found in the literature are listed vertically. The Intersection of a theorist and a quality will be highlighted, had this quality been mentioned by this particular theorist. However, if a theorist used a different terminology that still signifies the same quality in the vertical column, the term will be added to the slot. If a different terminology was used by a theorist but it still signifies the same quality in the vertical column, the term will be written in the slot.

Reaching an Overarching Definition for Residual Spaces

Qualities used by theorists to portray residual spaces could be grouped into 2 bundles, physical qualities and usage qualities. Physical qualities are those describing the space, either intrinsically or in relation to the broader context. Usage qualities of the space explain its occupancy pattern. This includes who uses it, how and when they use it and for what purpose.

From the literature, we notice that a common quality marking residual spaces is its latency. Hence, It can be concluded that residual spaces are those "inactive publicly owned latent pieces of land that are potentially exploitable", Where abandonment and deterioration are symptoms of a space being "inactive", and appropriation is an indication of its "exploitability". So, regardless of the reasons behind the emergence of residual spaces, the level of vibrancy and the potential for revitalization are the key factors defining residual spaces.

Socio-spatial Understanding of Residual Spaces

"The attempt to integrate the social and physical dimensions of space, or in other words to contextualize the physical space into human practices, is an important step in our understanding of space" (Madanipour, 2006). This means that neither the physical dimension of a space nor the social one is alone sufficient to fully understand any space. A socio-spatial approach is adopted in this paper to understand residual spaces, where the social aspect manifests in the usage qualities of the space and the spatial aspect manifests in the physical qualities of the space.

Table 3: Definitions and Descriptions of Residual spaces

Theorist	Year	Term Used by Theorist	Usage Qualities							Theorist												
			Underutilized	Potentially exploitable	Abandoned	Appropriated	Obsolete (in terms of use)	Unproductive														
Trancik	1983	Lost spaces							Of no positive contribution													
Rivlin	1986	Found spaces				Necessarily																
Morallis	1995	Terrain vague																				
Loukaitou-Sideris	1996	Cracks in the city																				
Groth & Corjin	2005	Intermediate spaces																				
Crisman	2005	Sites out of sight																				
Stvens	2007	Loose spaces				Necessarily																
Doron	2007	Dead zone/ edge				Often																
Alanyali	2009	Leftover spaces				Often																
Carmona	2010	Residual/ Neglected																				
Akkerman & Cornfeld	2010	Fortui-tous leftovers																				
Kamvasinou	2011	Vacant urban land																				Inactive

Year		1983	1986	1995	1996	2005	2005	2007	2007	2009	2010	2010	2011
Spatial Qualities	In need of re-design												
	Unplanned		Under-designed		Undeveloped			Unscripted					Undeveloped
	Indeterminate		As in Rules of use										
	Uncertain & blurred		Undefined							In terms of boundaries			In relation to land use
	Ill-defined (boundaries)												
	Deteriorating in appearance									Ruined			
	Invisible/unexposed												
Reasons behind emergence	Uncared for												
	Uncontrolled												
	Lack of maintenance				Decaying						Decaying		

Manifestations in the real world		Theorist
Year		
1983	Areas beneath highways, sunken plazas away from pedestrian activity, abandoned water fronts, train yards, vacated sites as well as residual areas between districts.	Trancik
1986	Strips of sidewalks either isolated from surroundings, islands, street intersections & squares that were geographically set off from surrounding space and often appropriated for vending activities.	Rivlin
1995	Unincorporated margins, interior islands void of activities	Morallis
1996	Decaying parks & playgrounds,	Loukaitou-Sideris
2005	gaps between one thing and another, collisions of scales and uses, leftover spaces under, over and along elevated highways and railway lines, or large urban voids and ruined places, fenced-off mini parks invisible from outside	Groth & Corjin
2005		Crisman
2007		Stvens
2007	X-industrial sites, dysfunctional harbors, barracks, train yards	Doron
2009	Unbuildable areas, interstitial zones, spaces related to circulation routes, abandoned as in x-function sites, neglected(designed but unused), vacant buildable lands	Alanyali
2010		Carmona
2010	Urban design has yet to provide a typology of such voids, let alone recognize their significance	Akkerman & Cornfeld
2011	Voids in-between spaces, vacant urban land, spaces unfit for development; vacant land or land pending development; derelict land.	Kamvasinou

As per the literature review, physical qualities of a space are either intrinsic, describing the site itself or extrinsic, contextually describing the site in relation to its surroundings. The former includes qualities such as the site's accessibility, visibility, topography, geometric form, boundaries, and area and safety, while the latter includes the site's location within the city or neighborhood, neighboring assets or attractions.

A site's accessibility could be dangerous, easy or unfeasible which affects possibilities of appropriation. A site's visibility affects its exposure and defines whether it would be noticed by vehicles moving on a high speed or pedestrians- and thus defines the potential customers. Also, the area of the site affects the amount of appropriators it could host and impacts the types of activities assigned to it. Qualities referring to the site within its context include neighboring facilities which may provide the site with a high pedestrians' flow. Visual attractions surrounding the site may add to the site's value and appeal. A site's location within the city is also a factor that might attract or repel appropriators.

Usage qualities of the site explain its current occupancy patterns. A space could be occupied on certain days of the week and abandoned on others such as parking lots serving business areas that are abandoned on weekends while another could be continuously abandoned such as linear spaces beneath bridges. Previous functions of a site may also affect its appropriation pattern, especially if it has a mnemonic value or cultural meaning in the minds of people. All these qualities are summed up in Table 2.

All the qualities mentioned in Table 2 are factors that decide whether a leftover space is likely to be appropriated or not, and could portray presumed modes of appropriation in terms of the time of appropriation, activity of appropriation, and whether it is prone for collective or individual appropriation.

Revitalizing residual spaces

Interventions upon residual spaces depend on the space potentials being recognized and hence used to revitalize the space. Such interventions could be either formal or informal. Formal interventions manifest in approaches by the government, investors, or community service organizations where pre-planned activities are introduced to the space on a temporary or permanent basis. Informal interventions manifest in appropriation, which is the active attempt made by users to satisfy their needs in their interactions with the physical environment. This is what contributes to the public realm (Proshansky and Rivlin, 1970).

Appropriation encompasses high dynamism of space with relevance to time. Appropriation may take place habitually or sporadically. Also, a space may be appropriated and re-appropriated for several times even by the same users, i.e. pass through "cycles of appropriations" (Alanyali, 2009). For example, abandoned waterfronts that are no longer used as marines may be appropriated into a space for art installations, picnics or for contemplation and then officially redesigned as a public park after a period of appropriation (Campo, 2002).

Uses of appropriated spaces are usually similar to those practiced in formal designed open spaces such as passing time, vending, as well as socializing. In summary, appropriation activities lie under one of two categories, they could either be urging activities fulfilling a necessary need such as earning a daily living; or an optional activity fulfilling leisure needs such as recreation and entertainment. In both cases, appropriation could either be a gesture of a single person, or it

could be done by a group of people (Korosec-Serfaty P. & G.E.P.E., 1977). In a given residual space, initiators of any appropriation activity could either be locals or outsiders.

Table 2: Physical and Usage qualities of residual spaces

Physical Qualities	Intrinsic Qualities	Accessibility	Safe , Dangerous
		Security level	High, Average, Low
		Visibility	Exposed, Hidden
		Site boundaries	Defined- Loose
		Site topography	Flat, Hilly
		Uniformity of form	Regular, Irregular
		Area of site	Tight, Spacious
	Extrinsic Qualities	Site's location	Peripheral, Central
		Neighboring facilities/assets	Views, Transportation facilities,...etc.
		Site's proximity to heavy circulation routes	Roads or Pedestrians Paths
Pre-intervention Usage Qualities	Current use for site	Vending, Recreation, etc., or None	
	Current users of site	Locals, Externals	
	Time of current use	Day, Night	
	Previous use for site	Industrial, cultural, etc.	

Observations in the Cairene Context

Unfortunately, Open spaces in Cairo have not kept up with the population growth in the city which resulted in Cairo having one of the lowest per capita statistics of green spaces in the world and suffering from open spaces scarcity. Citizens have responded to this scarcity of open spaces by appropriating urban residual spaces abundantly found within Cairo to fulfill their needs.

Walking in Cairo, one observes the dichotomy between scarcity of open spaces and availability of underused residual spaces. Residual spaces in Cairo may emerge due to spontaneous actions such as random growth in informal areas or sudden collapse of old buildings, or emerge due to deliberate actions such as providing public open spaces that are poorly designed and don't meet

the users' needs (Fig. 1), or designing for highways and bridges which often produce residual spaces beneath them.



Fig. 1: A poorly designed residual space in Cairo.
Source: author

The following part is a reflection of the derived theoretical findings, concluded earlier, on the Cairene context. Miscellaneous examples will show, first, how Residual spaces in Cairo could be pinpointed according to the overarching definition deduced from Table 1. Secondly, qualities of these spaces are to be identified using the socio-spatial approach discussed in Table 2. Third, revitalization interventions upon these spaces are discussed based on the researcher's observations and physical inspection, which further elaborates the spaces' potentials.

Case study 1

Background: This is a 4050 m² piece of land lying in a central spot in Maadi, a middle/ upper class residential area. The space is surrounded by low traffic roads as well as commercial and residential buildings. This site is an abandoned garden within the boundaries of a public library for kids. The library is not heavily used and so is the garden.

First: Symptoms of residuality (Table 1): This space is always abandoned and deteriorated in appearance. Its poor design manifests in the absence of shading elements, furniture or any attractive features for kids. Being fenced and covered in lawn means that it once had its share of design and is being maintained frequently. As per Alanyali's review, this is a prototype of interstitial residual space.

Second: Physical and usage qualities (Table 2): The site is a well defined one with a central location within its district, easily accessible, highly visible and proximate to commercial facilities. It's of a substantial area and a flat topography.

Third: Revitalization approach: (formality, activity, initiators, users, frequency): This site is occasionally approached by local community service organizations for holding leisurely activities such as holding concerts and public events that are formally publicized for. Vending activity takes place but on a leisurely basis rather than a necessary one, i.e. for catering the main event and publicizing for local people who operate home industries. Generally speaking, interventions on this space take place occasionally, on the weekends or public holidays. Pictures show the space being abandoned versus how vibrant it becomes on such events. (Figs. 2 & 3).

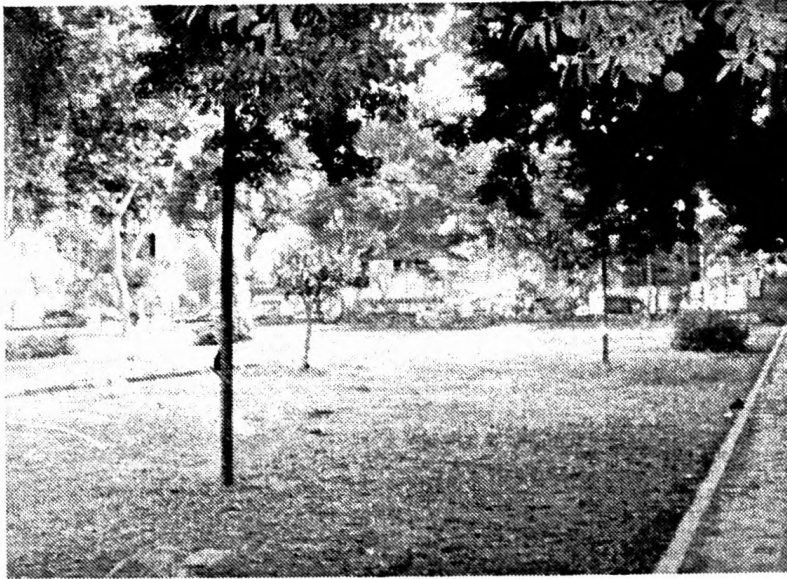


Fig. 2: Residual interstitial site in Cairo.
Source: author



Fig. 3: Residual interstitial site in Cairo.
Source: author

Similar Patterns: The same appropriation approach takes place in other sites in the district of Maadi. Below is an example of a residual piece of land in a residential area used by a local community organization to host activities for kids (Figs. 4 & 5).



Fig. 4: Residual space - abandoned
Source: author



Fig. 5: Residual space during appropriation
Source: author

Case study 2

Background: In general, sites beneath bridges emerged as a result of modern city planning for vehicles. This piece of land exists in one of the most congested areas in the city of Cairo and it is a few meters away from Cairo's central railway station.

First: Symptoms of residuality (Table 1): The space beneath the bridge was neither used nor designed. Moreover, sometimes such spaces are used for trash disposal, which even gives an impression of more deterioration and abandonment. As per Doron's review, it's a typical example of "dead edges", also referred to by Trancik's as "areas beneath highways".

Second: Physical and usage qualities (Table 2): The site lies within a walking distance from the central railway station, and therefore, it's highly exposed and highly accessible for vehicles and pedestrians. The bridge gives a visual- and loose- definition for the space boundaries and offers shade and shelter for appropriators. The space has been subject to lower levels of surveillance after the revolution in 2011 which- in addition to all the previously mentioned qualities- made it a perfect setting for street vending.

Third: Revitalization approach: (formality, activity, initiators, users, frequency): This site was informally appropriated by street vendors to satisfy a necessary need, i.e. earning a daily living.

Appropriation is habitual, i.e. it takes place on a daily basis where each vendor knows his territory and submits to the internal protocol of space divisions. It basically serves travelers as well as low income groups of people and passer bys (Fig. 6).



Fig. 6: Vending activity below Ramsis bridge in Cairo
Source: author

Similar Patterns: Street vending occurs under other bridges. The common factor between all spaces is the high flow of pedestrians and the site's good exposure (Figs. 7 & 8). Goods vary from vegetables to clothes or simple grocery. It's a non official activity initiated illegally and demands high resilience. The served segment is usually the middle/ low social class.



Fig. 7: Shops beneath Faysal Bridge
Source: author



Fig. 8: Vendors in Al Bahr Al-a'zam road
Source: author

Case study 3

Background: This site is a median strip extended along the Nile corniche. These appropriated strips of land are attached to a main road overlooking the Nile. It is located in "Maadi"; a middle/upper class district and is also proximate to "Dar Al-salam"- a low income area.

First: Symptoms of residuality (Table 1): Although pavements should normally be free of use to clear space for pedestrians, in that case the pavement is wider than the pedestrian's capacity which gives space for appropriation. Being covered in lawn, means that it is habitually maintained. However, effectively such space medians are unused and holds potential for more efficiency. This prototype is referred to by Winterbottom as "non spaces" and is also a typology acknowledged by Rivlin and Alanyali.

Physical and usage qualities (Table 2): This residual space is of high visibility, good level of maintenance, flat topography and above all a direct Nile view. Its area is relatively small and it lies along a high way, which makes it dangerously accessible. The space boundaries are defined by different land covers.

Third: Revitalization approach: (formality, activity, initiators, users, frequency): This site is often appropriated by neighboring locals to fulfill leisurely needs (Figs. 9 & 10). Appropriation takes place through picnics and passive engagement. Appropriation takes place occasionally, on feasts, public holidays and seasonally, more in summer than in winter when appropriated, street vendors show up to serve the gatherings. Although the site exists in a high income area, the lower income groups are the ones who initiate and benefit from this appropriation process.

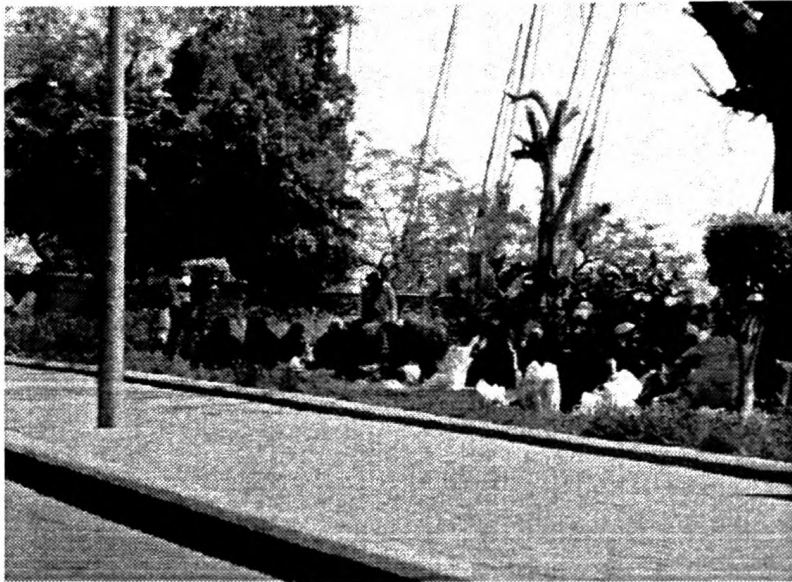


Fig.9: Appropriation for leisure on the Nile bank
Source: author



Fig. 10: Appropriation for leisure on the Nile bank
Source: author

Similar Patterns: Appropriation for recreational purposes occur in other spaces overlooking the Nile, however, not every appropriated space is residual. The pictures show cafeterias and vending trolleys set up on other pavements (Figs. 11 & 12).



Fig.11: A cafeteria set up on the pavement,
overlooking the Nile
Source: author

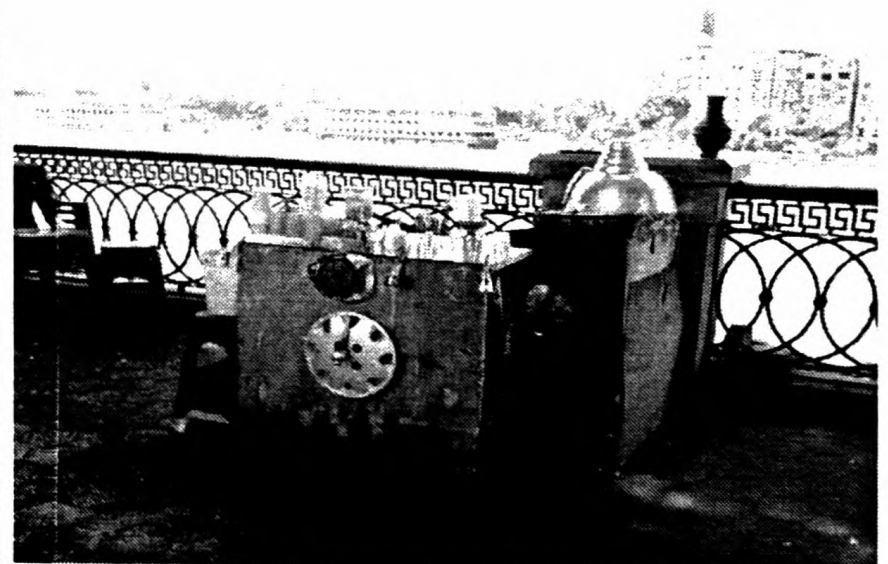


Fig.12: A vending trolley selling beverages on the
pavement overlooking the Nile
Source: author

Table 3 lists the physical and usage qualities of the three case studies and relates them to the resulting interventions. Residual spaces may exist in different forms, yet, they all prove to be latent spaces with a potential for better utilization. Formal and informal Interventions on such spaces improve their utilization, either through leisurely or necessary activities. The above examples have revealed a pattern relating the types of activities to the sites' qualities. For example, sites of high exposure and flow of people are usually revitalized for vending, whereas

others overlooking the Nile are usually exploited for recreational purposes. However, details of the same activity differ from one case to another depending on the social context. This was clear in differences between vending for leisure and for necessity in examples 1 & 2 respectively. In all cases, interventions upon residual spaces highlight their potentials and build upon the existing space qualities to host new activities.

Theoretical findings in this paper, is a generic tool that could be utilized on the governmental level in urban regeneration plans. It could also be applied in different cities, where changing contexts will unravel new forms of residual spaces and new patterns relating space qualities to the resulting interventions.

Table 3: Physical and usage qualities of the examples and their resultant appropriations

		Case1	Case2	Case 3
Physical qualities of site	Easy Accessibility	Easy	Medium	Medium
	Security level	Fair	fair	Fair
	Visibility	Exposed	Exposed	Exposed
	Site boundaries	Well defined by fence	Loosely defined by bridge above	Defined by different land cover
	Site topography	Flat	Flat	Flat
	Uniformity of form	Rectangular shape	Less defined	Rectangular patches
	Area of site	Spacious	undefined	Tight
	Site's location	Central node	edge	edge
	Neighboring facilities/assets	Residential /commercial	Residential/ transportation facilities	Nile view/ Residential
	Site's proximity to heavy circulation routes	Non existent	Existent	Existent
Pre-intervention usage qualities	use for site	Public library	None	streetscape
	users of site	neighbors	None	None
	Time of use	Day time	None	None
	Frequency of use	All week	None	None
Post-intervention usage qualities	Intervention Activity	Luxury/ entertainment	Necessity/ vending	Luxury/ recreation
	Intervention body	Official organizations	Locals	Informal
	Intervention time	All day	All day	All day
	Intervention frequency	occasional	daily	Occasional/ seasonal

Conclusions

Residual spaces are a latent resource existing in the urban context of Cairo as well as other cities, especially congested ones, although their typologies may differ from one city to another. This research derives an overarching definition for residual spaces being inactive publicly owned latent pieces of land that are potentially exploitable. Intervention on residual spaces requires a socio-spatial understanding that allows for studying the physical and usage qualities of the space altogether. This appears to be necessary since the field work has revealed certain patterns relating spatial and usage qualities of a space to the resulting interventions. It is only when the space is analyzed comprehensively that meaningful interventions could be reached.

Urban residuals offer a potential alternative to the scarcity of open spaces. This alternative should be seriously considered by governments instead of depending completely on vacant plots of land - which are usually a scarce resource. The success of formal interventions or the permanence of appropriations in such spaces unravels a social agreement of accepting such interventions. This could be used by governments in drawing guidelines for the future on how to revitalize residual spaces in a way that appeals to the community and meets their needs.

This paper introduced potentialities inherent in residual spaces. However, the topic is still in need for further research. For instance, different contexts other than Cairo could be investigated. The "social" aspect in the socio-spatial approach could expand to cover a wider spectrum of factors, such as users backgrounds and cultures, conflicts of interests between beneficiaries...etc. Also, Further research could unravel the roles and conflicts in the relationship between the different parties involved in the process; government, designers, and users. Based on field work, there is a need for further investigation of patterns relating intervention preferences to the space qualities. This might greatly influence the government's strategic visions for revitalizing residual spaces. Moreover, this is expected to have its positive impact on the process of urban regeneration in general.

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